Inviwo — A Visualization System with Usage Abstraction Levels Lucas Zamprogno More info, video, and more at https://inviwo.org/	 Motivations Accessibility: Should be accessible to those without programming experience Performance: Take advantage of low-level optimizations Adaptability: Work with many algorithms and technologies at once 		 Design Principles: Interactive Development Want to be able to view low-level change impacts Requires recompiling and/or observing source code changes Observe changes throughout pipeline
Inviwo Implementation: Interactive Development • Integrated editor allows for low-level code changes that are immediately reflected in the output	 Design Principles: Debugging Typically challenging to debug a multi-stage pipeline Idea: Have "ports" in and out of each stage to view intermediate data Different data types can support different views 	Invivo Implementation: Debugging	 Design Principles: Documentation Tends to be targeted at developers, but vis designers need access Suggest incorporating it into the API designers use Tailor documentation appropriately
Invite Implementation Decumentation	Design Bringiples: Testing	Invitve Implementation: Testing	Decign Bringinlag: Intergenerability
the second	Unit testing often used for low-level code Open that option up to high-level designers		For performance reasons, want access to computing platforms like OpenGL, OpenCl, CUDA
 and managements and managements a	Need to compensate for hardware differences	The share States 1131 The share States 1131	 Algorithms in one system can't easily interact with others This can be a challenge with new technology not being compatible with existing algorithms
 Image: Section 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	Need to compensate for hardware differences	Highlights	Algorithms in one system can't easily interact with others This can be a challenge with new technology not being compatible with existing algorithms

Paper Critiques

• Almost no discussion of their own limitations

Seemed to oversell some points

- Default implementation of port debugging
- Running Inviwo tests on the same machine

Questions/Discussion